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 Copy No. 1 of 8

MEMORANDUM FOR: CIA ELINT Staff Officer

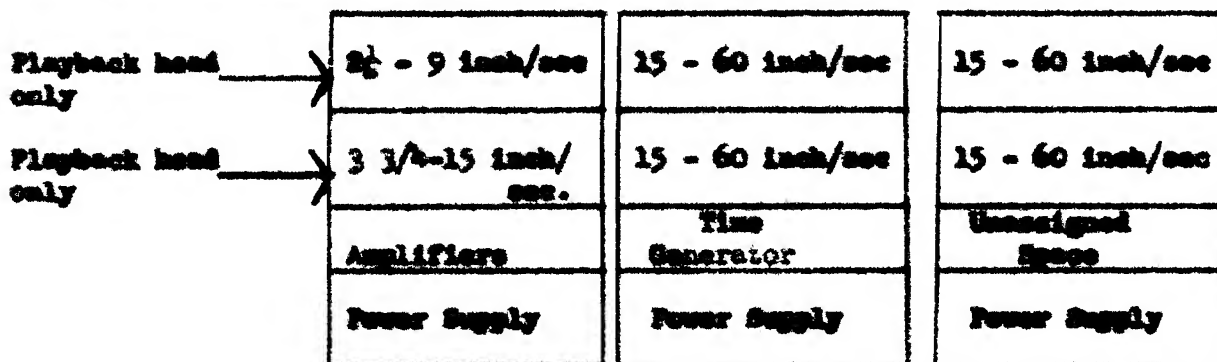
APR 1 1956

SUBJECT : Ground Exploitation Equipment for Systems #1, #3 and #4

- REFERENCES : (a) Paper dated 31 January 1956, subject: System #1 Transcribing and Processing Equipment, Modification of
- (b) Memorandum for CIA ESO, dated 23 March 1956, Subject: Standard Tape Width and Speeds for CIA ELINT Program
- (c) Memorandum for CIA ESO, dated 23 March 1956, subject: Modification and Addendum to System #1 Transcribing and Processing Equipment
- (d) Memorandum for CIA ESO, dated 2 April 1956, same subject as (c) above

1. Systems #1, #3 and #4 require ground duplicating equipment and ground analysis equipment. This paper is a summary of the referenced papers with the addition of recent information on deliveries, quantities desired and expected costs of these equipments.

2. The duplicating equipment for Systems #1 and #3 will make four <sup>9</sup> duplications simultaneously at four times normal speed (a ten-hour operation will be duplicated in 2½ hours). Simultaneously with duplicating, precision ten-second pulses and approximately one-minute voice annotations will be put on the tapes. Monitoring outputs are available during the duplicating and these outputs may be used individually or mixed. The present physical lay-out of the duplicating equipment is as pictured below:



Three six-foot racks

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Five of these are needed; one for each Base, one for Barton Hall or TFC and one for the Ranch. The latter will become a spare and be held in the Washington area after its value at the Ranch is realized. Two of these are to be delivered 1 June 1956 with one per month delivered thereafter. (The first two may be deliverable on 15 May if Ampex tape transport deliveries can be expedited.)

3. The ground analysis equipment for System #1 consists of three pieces: (1) a playback unit proper, (2) an event indicator; and (3) a PNF indicator. The playback unit has three heads (playback, erase and record), speeds of 3 3/4 and 15 inches/sec. and monitoring outputs of each channel and any combination of channels simultaneously. This playback unit is also needed for System #3. Sixteen units have been requested with more expected when NSA requirements are firmed up (four of these sixteen are for NSA). Three are to be delivered by 1 June 1956, four in July, 1956 and four per month thereafter.

4. The event indicator is to have fourteen channels and will be used in the analysis of Systems #1, #3 and #4. On System #1, six of the fourteen channels will be used to show the existence and time (within ten seconds or less) of the occurrence of any event of signal interception or camera shutter action. Thirteen of these have been requested. Their production schedule is to be the same as that for the playback unit of Paragraph 3 above.

5. The PNF indicator will read PNF directly from the tapes on those pulse signals that have fixed repetition rates. Thirteen have been requested. They will be used in Systems #1 and #4 analysis. No production schedule has been set as yet. They are not essential for analysis, but will add accuracy and time-saving to the analysis process.

6. System #3 ground exploitation equipment is identical to that of System #1 (see Paragraphs 2 and 3 above) except for the third piece of the analysis equipment. A frequency indicator (or calculator) is needed and no PNF indicator is required. The quantities of duping equipments, playback units and event indicators specified above include the requirements for System #3. The frequency indicator converts the pulses on the tapes into digits, which can be then translated into the frequency band (nine bands exist) of the intercept. Nine of these equipments have been requested. Two are to be delivered 1 July 1956. No date has been set for the remaining seven.

7. Five System #4 duping equipments have been requested. This equipment is to make two dups simultaneously at four times normal speed.

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(A ten-hour operation will be duped in  $2\frac{1}{2}$  hours.) The present physical picture of this equipment is shown below:

Playback head only

|                                  |
|----------------------------------|
| 3 3/4-7 1/2-15-30<br>inches/sec. |
| 3 3/4-7 1/2-15-30<br>inches/sec. |
| Amplifiers                       |
| Power Supply                     |

|                                  |
|----------------------------------|
| 3 3/4-7 1/2-15-30<br>inches/sec. |
| 3 3/4-7 1/2-15-30<br>inches/sec. |
| Time<br>Generator                |
| Power Supply                     |

(Identical to time generator System #1 duping equipment)

Two six-foot racks

8. The System #4 ground analysis equipment has not yet been firmed up. This can not be done until the System #4 proposal is finalized. It appears, however, that four equipments will be needed: (1) a playback unit for 1" tapes; (2) an event indicator; (3) a PRF indicator; and (4) a related information calculator. Items (2) and (3) will be identical with Item (2) and (3) of the System #1 analysis equipment (see Paragraph 3 above), but additional quantities may be needed. Items (1) and (4) are new pieces of equipment.

9. The present estimate of the cost of the items on request is \$650,000. On request are:

- a. Five System #1 and #3 duping equipments.
- b. Five System #4 duping equipments.
- c. Sixteen System #1 and #3 playback units.
- d. Thirteen Event indicators for Systems #1, #3 and #4.
- e. Thirteen PRF indicators for Systems #1 and #4.
- f. Nine frequency indicators for System #3.
- g. No System #4 playback units.
- h. No System #4 related information calculators.

As a rough estimate, approximately ten each of (g) and (h) will be required and the cost of these ten will perhaps be \$175,000. This is a Sears estimate only and has not been discussed with the supplier.

10. Should additional units of any of the above equipments be desired, they can be purchased at the following production costs:

- a. System #1 and #3 duping equipment - \$16,758.00\*
- b. System #4 duping equipment - \$25,000.00\*
- c. Systems #1 and #3 playback units - \$3,800.00\*
- d. Systems #1, #3 and #4 event indicators - \$2,350.00\*

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- e. Systems #1 and #4 PWT indicators - \$3,936.00<sup>00</sup>
- f. System #3 frequency calculators - \$2,498.00<sup>00</sup>
- g. System #4 playback equipment - \$7,500.00<sup>00</sup>
- h. System #4 related information indicator - \$5,000.00<sup>00</sup>

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- \* - Producer's Estimate
- \*\* - Sears' Estimate

LR/JPS:ja (10 April 1956)

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